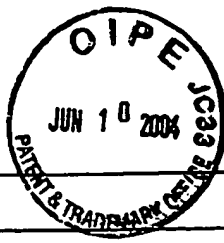
Sheet 1 of 6

Form PTO-1449 (Substitute)				U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		Attorney Docket Number LAZE-01011US1		Serial/Patent Number 10/684,883	
Information Disclosure Statement BY APPLICANT (Use several sheets if necessary)				Applicant/Patent Owner Thomas F. Rust					
				Filing/Issue Date 10/14/2003			Group Art Unit 2655		
U.S. PATENTS									
Examiner Initial		Patent Number	Issue Date	First Named Inventor	Class	Subclass	Filing Date		
ap	1	4,340,953	07/20/82	Iwamura et al.	369	126	05/07/80		
	2	4,575,822	03/11/86	Quate	365	174	02/15/83		
	3	4,829,507	05/09/89	Kazan et al.	369	126	08/15/88		
	4	4,831,614	05/16/89	Duerig et al.	369	101	03/13/87		
	5	4,916,688	04/10/90	Foster et al.	369	126	03/31/88		
	6	4,945,515	07/31/90	Ooumi et al.	365	174	09/12/88		
	7	4,962,480	10/09/90	Ooumi et al.	365	151	09/12/88		
	8	4,987,312	01/22/91	Eigler	250	492.3	11/07/89		
	9	5,038,322	08/06/91	Van Loenen	365	114	02/03/89		
	10	5,043,578	08/27/91	Guethner et al.	250	307	04/05/90		
	11	5,051,977	09/24/91	Goldberg	369	126	08/30/89		
	12	5,091,880	02/25/92	Isono et al.	365	151	01/29/90		
	13	5,095,479	03/10/92	Harigaya et al.	369	288	08/12/91		
	14	5,097,443	03/17/92	Kaneko et al.	365	153	03/28/90		
	15	5,144,148	09/01/92	Eigler	250	492.3	08/07/90		
	16	5,187,367	02/16/93	Miyazaki et al.	250	306	08/08/91		
	17	5,216,631	06/01/93	Sliwa, Jr.	365	174	11/02/90		
	18	5,251,200	10/05/93	Hatanaka et al.	369	126	09/11/91		
	19	5,260,567	11/09/93	Kuroda et al.	250	227.19	04/08/92		
	20	5,262,981	11/16/93	Rabe et al.	365	120	07/01/91		
	21	5,265,046	11/23/93	Fuchs et al.	365	151	12/30/91		
ap	22	5,289,455	02/22/94	Kuroda et al.	369	126	07/23/91		



U.S. PATENTS							
Examiner Initial		Patent Number	Issue Date	First Named Inventor	Class	Subclass	Filing Date
ap	23	5,307,311	04/26/94	Sliwa, Jr.	365	174	02/09/93
	24	5,323,375	06/21/94	Ihara et al.	369	126	03/09/92
	25	5,335,197	08/02/94	Kaneko et al.	365	153	12/10/91
	26	5,389,475	02/14/95	Yanagisawa et al.	430	019	06/18/92
	27	5,412,597	5/02/95	Miyazaki et al.	365	174	10/15/93
	28	5,446,684	08/29/95	Kaneko et al.	365	046	05/10/94
	29	5,453,970	09/26/95	Rust et al.	369	176	07/13/93
	30	5,471,064	11/28/95	Koyanagi et al.	250	452.2	09/14/93
	31	5,471,458	11/28/95	Oguchi et al.	369	126	09/08/93
	32	5,557,596	09/17/96	Gibson et al.	369	101	07/12/95
	33	5,606,162	02/25/97	Buser et al.	250	306	07/01/96
	34	5,751,685	05/12/98	Yi	369	126	05/10/96
	35	5,778,134	07/07/98	Sakai et al.	386	046	09/03/96
	36	5,804,710	09/08/98	Mamin et al.	073	105	06/05/97
	37	5,808,973	09/15/98	Tanaka	369	14	09/06/96
	38	5,822,285	10/13/98	Rugar et al.	369	44.26	03/31/97
	39	5,835,477	11/10/98	Binning et al.	369	126	07/10/96
	40	5,848,077	12/08/98	Kamae et al.	371	053	12/08/95
	41	5,856,967	01/05/99	Mamin et al.	369	126	08/27/97
	42	5,929,438	07/27/99	Suzuki et al.	250	306	01/16/97
	43	5,953,306	09/14/99	Yi	369	126	04/25/97
	44	6,001,519	12/14/99	Yang et al.	430	020	07/02/98
	45	6,027,951	02/22/2000	MacDonald et al.	438	020	08/18/98
	46	6,038,916	03/21/00	Cleveland et al.	073	105	07/22/97
	47	6,196,061	03/06/2001	Adderton et al.	073	105	11/05/98
	48	6,275,410 B1	08/14/2001	Morford	365	151	11/09/2000
ap	49	6,339,217	01/15/2002	Kley	250	216	07/28/95



U.S. PATENTS							
Examiner Initial		Patent Number	Issue Date	First Named Inventor	Class	Subclass	Filing Date
ap	50	6,507,552 B2	01/14/2003	Gibson	369	126	12/01/2000
ap	51	6,522,566 B2	02/18/2003	Carter	365	118	12/01/2000
ap	52	6,542,400 B2	04/01/2003	Chen et al.	365	151	03/27/2001

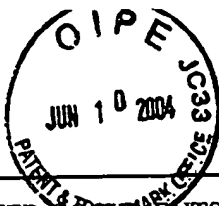
U.S. PATENT PUBLICATIONS				
Examiner Initial		Patent Application Publication Number	Publication Date	Applicant
ap	53	US 2002/0110074 A1	08/15/2002	Gibson
	54	US 2002/0135917 A1	09/26/2002	Davidson
	55	US 2003/0007443 A1	01/09/2003	Nickel
	56	US 2003/0081532 A1	05/01/2003	Gibson
	57	US 2003/0185139 A1	10/02/2003	Ives
ap	58	US 2003/0189200 A1	10/09/2003	Lee et al.

PENDING U.S. PATENT APPLICATIONS					
Examiner Initial		Application Number	Filing Date	First Named Inventor	Petition to Expunge? Yes No

FOREIGN PATENT DOCUMENTS								
Examiner Initial		Document Number	Publication Date	Country	Class	Subclass	Translation Yes No	
ap	59	WO 96/11472	04/18/96	PCT				
	60	JP3295043	12/26/91	JAPAN			X	
	61	JP3295044	12/26/91	JAPAN			X	
ap	62	JP4159636	06/02/92	JAPAN			X	



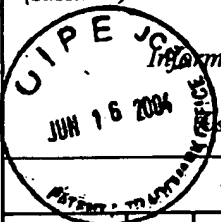
OTHER DOCUMENTS (Include author (if any), title, publisher and place of publication, date and pertinent pages)		
63	BO HONG, <i>Exploring the Usage of MEMS-based Storage as Metadata Storage and Disk Cache in Storage Hierarchy</i> , Storage Systems Research Center, Jack Baskin School of Engineering, University of California at Santa Cruz http://www.cse.ucsc.edu/~hongbo/publications/mems-metadata.pdf	63
64	SUMIO HOSAKA, HAJIME KOYANAGI AND ATSUSHI KIKUKAWA, Nanometer Recording on Graphite and Si Substrate Using an Atomic Force Microscope in Air, Japan Journal of Applied Physics, Volume 32 (1993) pp. L464-467, Part 2, No. 3B, March 15, 1993, Central Research Laboratory, Hitachi Limited, Kokubunji, Tokyo 185	64
65	ATSUSHI KIKUKAWA, SUMIO HOSAKA, YUKIO HONDA' and RYO IMURA, Phase-Controlled Scanning Force Microscope, Japanese Journal of Applied Physics, Volume 33 (1994) pp. L1286-L1288, Part 2, No. 9A, September 1, 1994, Advanced Research Laboratory, Hitachi Limited, 1-280 Higashi-koigakubo, Kokubunji-shi, Tokyo 185, 'Central Research Laboratory, Hitachi Limited, 1-280 Higashi-koigakubo, Kokubunji-shi, Tokyo 185	65
66	WILLIAM P. KING, DANIEL A. FLETCHER and Y. SUNGTAEK JU, Nanometer-Scale Thermal Processing for Advanced Manufacturing (YIP '96), Office of Naval Research Annual Grant Report, First Annual Report: May 1, 1996 - April 30, 1997, pp. 1 - 8	66
67	T. C. REILEY, T.R. ALBRECHT, D. W. ALBRECHT, K. KUROKI and M. AOYAGI, A Micro Hard Disk Drive, I.B.M. - Almaden Research Center, I.B.M. Storage System Division, Electrochemical Society Proceeding, Volume 98-20, pp. 10 - 18	67
68	SEIJI HEIKI, YASUO WADA and TOMIHIRO HASHIZUME, Correlation Between Tip-Apex Shape and Surface Modification by Scanning Tunneling Microscopy, Journal of Applied Physics, Vol. 86, No. 8, pp. 4220 - 4224	68
69	MICHAEL BROOKS, Hole in One, New Scientist, March 27, 1999, pp. 46 - 48	69
70	H. JONATHON MAMIN, ROBERT P. RIED, BRUCE D. TERRIS and DANIEL RUGAR, High-Density Data Storage Based on the Atomic Force Microscope, Proceeding of the IEEE, Volume 87, No. 6, June 1999, pp. 1014 - 1027	70
71	STEVEN W. SCHLOSSER, JOHN LINWOOD GRIFFIN, DAVID F. NAGLE, AND GREGORY R. GANER, Filling the Memory Access Gap: A Case for On-Chip Magnetic Storage, School of Computer Science, Carnegie Mellon University, November 1999	71
72	STEVEN W. SCHLOSSER, JOHN LINWOOD GRIFFIN, DAVID F. NAGLE and GREGORY R. GANGER, Carnegie Mellon University, Designing Computer Systems with MEMS-Based Storage, 9 th International Conference on Architectural Support for Programming Languages and Operating Systems, 2000	72
73	S. HOSAKA, K. ETOH, A. KIKUKAWA AND H. KOYANAGI, Megahertz Silicon Atomic Force Microscopy (AFM) Cantilever and High-Speed Readout in AFM-Based Recording, Journal of Vacuum Science Technology, Vol 18, No. 1, January/February 2000, pp. 94 - 99	73
74	ROBERT P. RIED, Air-Bearing Sliders and Plane-Plane-Concave Tips for Atomic Force Microscope Cantilevers, Journal of Microelectromechanical Systems, Volume 9, No. 1, March 2000, pp. 52 - 57	74
75	L. RICHARD CARLEY, GREGORY R. GANGER and DAVID F. NAGLE, Mems-Based Integrated-Circuit Mass-Storage Systems, Communications of the ACM, Volume 43, No., 11, November 2000, pp. 73 - 80	75
76	P. VETTIGER, M. DESPONT, U. DRECHSLER, U. DURIG, W. HABERLE, M. I. LUTWYCHE, H.E. ROTHUIZEN, R. STUTZ, R. WIDMER AND G. K. BINNIG, The "Millipede" - More than one thousand tips for future AFM data storage, I.B.M. J. Res. Develop., Volume 44, No. 3, May 2000, pp. 323 - 340	76

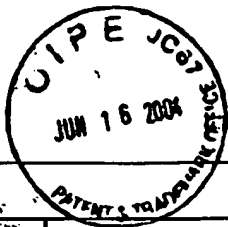


OTHER DOCUMENTS (Include author (if any), title, publisher and place of publication, date and pertinent pages)		
ap	77	R. B. ZMOOD, L. QIN, D. K. SOOD, T. VINAY and D. MEYRICK, School of Electrical and Computer System Engineering, Royal Melbourne Institute of Technology, Melbourne, Victoria 3000, Australia, Magnetic MEMS Used in Smart Structures Which Exploit Magnetic Materials Properties, Smart Structures and Devices, Proceeding of the SPIE, Volume 4235, 2001, pp. 173 - 187
	78	MICHAEL GROSS, Small is Great!, New Scientist, July 14, 2001, pp. 1 - 4
	79	G. CHERUBINI, T. ANTONAKOPOULOS, P. BACHTOLD, G. K. BINNIG, M. DESPONT, U. DRECHSLER, A. DHOLAKIA, U. DURIG, E. ELEFThERIOU, B. GOTSMANN, W. HABERLE, M. A. LANTZ, T. LOELIGER, H. POZIDIS, H. E. ROTHUIZEN, R. STUTZ AND P. VETTIGER, I.B.M. Research, Zurich Research Laboratory, The Millipede, a Very Dense, Highly Parallel Scanning-Probe Data-Storage System, ESSCIRC 2002, pp. 121 - 125
	80	E. ELEFThERIOU, G. CHERUBINI, H. POZIDIS, H. E. ROTHUIZEN AND P. VETTIGER, Millipede - a MEMS-Based Scanning-Probe Data-Storage System, APMRC 2002, pp. 1 - 8
	81	SATOSHI KAWAMURA, Electronics Device Division, Hitachi Maxell, Limited, Coil on Chip RFID System by Super EF2 Technology, Nippon Oyo Jiki Gakkai Kenkyukai Shiryo, Vol. 123, pp. 21 - 25
	82	Molecular Chip Patent, Poptronics, Vol. 3, No. 5, May 2002, pp. 11 - 12
	83	KENNETH J. KORANE, A King-Size Future for Nanosize Machines, Machine Design Vol 74, No. 18, September 19, 2002, pp. 88 - 94
	84	PETER VETTIGER AND GERD BINNIG, The Nanodrive Project: Inventing a Nanotechnology Device for Mass Production and Consumer Use is Trickier than it Sounds, Scientific American, Vol. 288, No. 1, 2002, pp. 47 - 53
	85	MUSTAFA UYSAL, ARIF MERCHANT, GUILLERMO A. ALVAREZ, Hewlett Packard Laboratories, Using MEMs-Based Storage in Disk Arrays, Proceedings of FAST '03: 2 nd USENIX Conference on File and Storage Technologies, USENIX Association, pp. 89 - 101
	86	KIYOSHI, T., ET AL., "Switching and memory phenomenon in Langmuir-Blodgett film using a scanning tunneling microscope," Canon, Inc., IEIC Technical Report (1994), Vol. 93, No. 524 (OME93 54-59), pp. 7012, Fig. 6, Ref. 15.
	87	KIYOSHI T. ET AL., Application and Progress in the Scanning Probe Microscopy, High Density Information Storage Using Langmuir-Blodgett Film and Atomic Force Microscopy," Canon, Inc., Journal of the Surface Science Society of Japan (1997), Vol. 18, No. 4, pp. 213-218, Fig. 7, Ref. 14.
	88	KADO, H. and TOHDA, T., "Nanometer-scale recording on chalcogenide films with an atomic force microscope," Appl. Phys./ Lett., Vol. 66, No. 22, 29 May 1995, pp. 2961-2962.
	89	YANO, K., ET AL., "Nanometer scale conductance change in a Langmuir-Blodgett film with the atomic force microscope," Appl. Phys. Lett., Vol. 68, Vol. 2, 8 January 1996, pp. 188-190.
	90	YANO, K. and IKEDA, T., "Stable bit formation in polyimide Langmuir-Blodgett film using an atomic force microscope," Appl. Phys. Lett., Vol. 80, Vol. 6, 11 February 2002, pp. 1067-1069.
	91	BARRETT, R.C. and QUATE, C.F., "Large-scale charge storage by scanning capacitance microscopy," Ultramicroscopy 42-44 (1992) pp. 262-267.
	92	GARDNER, E., "AFM Fabricates a Tiny Transistor," Science, Vol. 266, 28 October 1994, p. 543.
ap	93	HAGAN, H.P., et al., "Temporal behaviour of nanofeatures on Au," Ultramicroscopy, 42-44 (1992), pp. 587-593.



OTHER DOCUMENTS (Include author (if any), title, publisher and place of publication, date and pertinent pages)		
94	MAJUMDAR, A., ET AL., "Nanometer-scale lithography using the atomic force microscope," Appl. Phys. Lett., Vol. 61, No. 19, 9 November 1992, pp. 2293-2295.	
95	MAMIN, H.J. and RUGER, D., "Thermomechanical writing with an atomic force microscope tip," App. Phys. Lett., Vol. 61, No. 8, 24 August 1992, pp. 1003-1005.	
96	MAMIN, H.J., ET AL., "High Density data storage using proximal probe techniques," The IBM Journal of Research and Development, Vol. 39, No. 6, November 1995, pp. 681-699.	
97	MANALIS, S., ET AL., "Submicron studies of recording media using thin-film magnetic scanning probes," Applied Physics Letters, Vol. 66, No. 19, 8 May 1995, pp. 2585-2587.	
98	TERRIS, B.D., ET AL., "Atomic force microscope-base data storage: track servo and wear study," Applied Physics A Vol. 66, pp. S809-S813 (1998), (IBM Almaden Research Center, presented STM 97).	
99	UESUGI, K. and YAO, T., "Nanometer-scale fabrication on graphite surfaces by scanning tunneling microscopy," Ultramicroscopy, 42-44 (1992), pp. 1443-1445.	
100	PCT Written Opinion mailed December 18, 2000, International Application No. PCT/US99/30326, filed December 20, 1999	
101	T.C. SHEN ET AL; Ion irradiation effects on graphite with the scanning tunneling microscope; J.Vac.Sci. Technol. B9(2), Mar/Apr 1991; pp.1376-1379	
102	U. STAUFER ET AL; Tailoring nanostructures with a scanning tunneling microscope; J.Vac.Sci. Technol. B9(2), Mar/Apr 1991; pp.1389-1393	
103	H.J. MAMIN; Gold deposition from a scanning tunneling microscope tip; et al.; J.Vac.Sci. Technol. B9(2), Mar/Apr 1991; pp.1398-1402	
104	J.A. DAGATA, ET AL. Pattern generation on semiconductor surfaces by a scanning tunneling microscope operating in air;; J.Vac.Sci. Technol. B9(2), Mar/Apr 1991; pp.1384-1388	
105	T.R. ALBRECHT, ET AL. Nanometer-scale hole formation on graphite using a scanning tunneling microscope;; Appl.Phys.Lett., Vol.55, No.17, 23 October 1989; pp.1727-1729	
106	M.AONO; Has Japan Begun to Move Toward Atomic Level Material Processing?; Science, Vol. 258; 23 October 1992	
Examiner <u>Cash Phung</u> Date Considered <u>1/14/05</u>		
*EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.		
*1 = Copy not submitted because it was submitted in prior application SN <u>/</u> , filed <u></u> , 20 <u></u> , relied on under 35 USC §120.		
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				Applicant/Patent Owner Thomas F. Rust			
				Filing/Issue Date 10/14/2003		Group Art Unit 2655	
U.S. PATENTS							
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ap	1	5,196,701	03/23/1993	Foster et al.	250	306	07/31/1991
	2	5,537,372	07/16/1996	Albrecht et al.	369	043	11/24/1993
	3	5,561,300	10/01/1996	Wada et al.	250	492.2	12/22/1992
	4	5,679,952	10/21/1997	Lutwyche et al.	250	306	05/19/1995
	5	5,801,472	09/01/1998	Wada et al.	310	309	08/13/1996
	6	5,856,967	01/05/1999	Mamin et al.	369	126	08/27/1997
	7	6,084,849	07/04/2000	Durig et al.	369	126	05/20/1996
	8	6,366,340	04/02/2002	Ishibashi et al.	355	069	06/05/1998
	9	6,369,400 B2	04/09/2002	Haeberle et al.	250	548	10/06/1999
ap	10	6,647,766 B2	11/18/2003	Despont et al.	073	105	12/20/2000
U.S. PATENT PUBLICATIONS							
Examiner Initial		Patent Application Publication Number	Publication Date	Applicant			
ap	11	2002/0101573 A1	08/01/2002	Ishibashi et al.			
PENDING U.S. PATENT APPLICATIONS							
Examiner Initial		Application Number	Filing Date	First Named Inventor	Petition to Expunge? Yes No		



FOREIGN PATENT DOCUMENTS								
Examiner Initial		Document Number	Publication Date	Country	Class	Subclass	Translation Yes No	
ap	12	EP 0 788 149 A1	06/08/1997	EPO	H01L	21/3205		
ap	13	WO 02/37488 A1	05/10/2002	PCT	G11B	9/00		
ap	14	WO 97/05610	02/13/1997	PCT	G11B	9/00		

OTHER DOCUMENTS (Include author (if any), title, publisher and place of publication, date and pertinent pages)

Examiner <i>Cook Phung</i>	Date Considered <i>1/14/05</i>
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